

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Sherif YACOUB et al.	§	Confirmation No.:	6342
		§		
Serial No.:	10/773,392	§	Group Art Unit:	2626
		§		
Filed:	02/06/2004	§	Examiner:	L. St. Cyr
		§		
For:	Automated Speed	§	Docket No.:	200310469-1
	Recognition	§		

**APPEAL BRIEF**

**Mail Stop Appeal Brief – Patents**

Date: July 13, 2009

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

Appellants hereby submit this Appeal Brief in connection with the above-identified application. A Notice of Appeal was electronically filed on May 11, 2009.

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**I. REAL PARTY IN INTEREST**

The real party in interest is Hewlett-Packard Development Company, L.P. (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas. HPDC is a wholly owned affiliate of Hewlett-Packard Company (HPC). The Assignment from the inventors to HPDC was recorded on February 6, 2004, at Reel/Frame 014968/0891.

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**II. RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any related appeals or interferences.

**III. STATUS OF THE CLAIMS**

Originally filed claims: 1-24.

Claim cancellations: 7, 8, 14, 19, 20, 23 and 24.

Added claims: None.

Presently pending claims: 1-6, 9-13, 15-18, 21 and 22.

Presently appealed claims: 1-6, 9-13, 15-18, 21 and 22.

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**IV. STATUS OF THE AMENDMENTS**

No claims were amended after the final Office Action dated April 17, 2009.

## **V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

This section provides a concise explanation of the subject matter defined in each of the independent claims, referring to the specification by page and line number or to the drawings by reference characters as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified with a corresponding reference to the specification or drawings where applicable. The specification references are made to the application as filed by Appellants. Note that the citation to passages in the specification or drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element. Also note that these specific references are not exclusive; there may be additional support for the subject matter elsewhere in the specification and drawings.

Automatic speech recognition (ASR) systems convert spoken words into computer-readable representations. An ASR engine may be the subject of a license. The license may specify the maximum number of simultaneous connections that may be established with the ASR engine. Unfortunately, the particular maximum number of connections may not always be enough. Appellants' contribution addresses this problem.<sup>1</sup>

The invention of claim 1 is a system<sup>2</sup> that comprises a first speech recognition engine,<sup>3</sup> a second speech recognition engine,<sup>4</sup> and evaluation logic<sup>5</sup> coupled to the first and second speech recognition engines. The evaluation logic evaluates the first and second speech recognition engines based on evaluation signals from a user<sup>6</sup> and, based in part on the evaluation, selects one of the speech recognition engines to process additional speech signals from the user.<sup>7</sup>

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<sup>1</sup> See Appellants' disclosure page 1, line 1 of para. [0001] through line 7 of para. [0002].

<sup>2</sup> Fig. 2, 114. Appellants' disclosure p. 3, line 1 of para. [0013].

<sup>3</sup> Fig. 2, 212. Appellants' disclosure p. 3, line 4 of para. [0013].

<sup>4</sup> Fig. 2, 214. Appellants' disclosure p. 3, line 5 of para. [0013].

<sup>5</sup> Fig. 2, 210. Appellants' disclosure p. 3, line 4 of para. [0013].

<sup>6</sup> Appellants' disclosure p. 5, lines 7-8 of para. [0019].

<sup>7</sup> Appellants' disclosure p. 5, lines 10-12 of para. [0019].

The first speech recognition engine permits a plurality of ports to be used on behalf of a plurality of users.<sup>8</sup> The system further comprises a port monitor<sup>9</sup> coupled to the first speech recognition engine and to the evaluation logic. The port monitor determines a number of currently available ports.<sup>10</sup> If the number of currently available ports exceeds a threshold, the port monitor causes the first speech recognition engine to be selected and used.<sup>11</sup>

The invention of claim 9 is a system<sup>12</sup> that comprises first means for recognizing speech,<sup>13</sup> second means for recognizing speech,<sup>14</sup> and means for evaluating<sup>15</sup> a parameter associated with the first and second means for recognizing speech based on evaluation voice input from a user<sup>16</sup> during a session and, based on the evaluation, for selecting one of the first and second means for recognizing speech.<sup>17</sup> The system also comprises means for monitoring<sup>18</sup> a number of available ports<sup>19</sup> associated with the first means for recognizing speech and for selecting the first means for recognizing speech if the number of available ports exceeds a threshold.<sup>20</sup>

The invention of claim 15 is directed to a method that comprises evaluating an evaluation set of utterances from a user during a session.<sup>21</sup> Based on evaluating the evaluation set of utterances, the method further comprises

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<sup>8</sup> Appellants' disclosure p. 4, lines 1-3 of para. [0017].

<sup>9</sup> Fig. 2, 208. Page 3, line 4 of para. [0013].

<sup>10</sup> Appellants' disclosure p. 7, lines 3-5 of para. [0025].

<sup>11</sup> Appellants' disclosure p. 7, lines 8-10 of para. [0025].

<sup>12</sup> Fig. 2, speech recognition module 114. Appellants' disclosure p. 3, line 1 of para. [0013].

<sup>13</sup> Fig. 2, primary ASR engine 212. Appellants' disclosure p. 3, line 4 of para. [0013].

<sup>14</sup> Fig. 2, secondary ASR engine 214. Appellants' disclosure p. 3, line 5 of para. [0013].

<sup>15</sup> Fig. 2, evaluator 210. Appellants' disclosure p. 3, line 4 of para. [0013].

<sup>16</sup> Appellants' disclosure p. 5, lines 7-8 of para. [0019].

<sup>17</sup> Appellants' disclosure p. 5, lines 10-12 of para. [0019].

<sup>18</sup> Fig. 2, port monitor 208. Page 3, line 4 of para. [0013].

<sup>19</sup> Appellants' disclosure p. 7, lines 3-5 of para. [0025].

<sup>20</sup> Appellants' disclosure p. 7, lines 8-10 of para. [0025].

<sup>21</sup> Appellants' disclosure p. 5, lines 7-8 of para. [0019].



selecting between a first speech recognition engine<sup>22</sup> and a second speech recognition engine<sup>23</sup> for the remainder of the session.<sup>24</sup> The method also comprises automatically selecting the first speech recognition engine if a number of available ports associated with the first speech recognition<sup>25</sup> engine exceeds a predetermined value.<sup>26</sup>

Claim 21 is directed to a storage medium containing code<sup>27</sup> that can be loaded into a computer<sup>28</sup> and executed by a processor in the computer. The code causes the computer to evaluate an evaluation set of utterances from a user,<sup>29</sup> and based on the evaluation of the evaluation set of utterances, select between a first speech recognition engine and a second speech recognition engine.<sup>30</sup> The code also causes the computer to determine a number of available ports associated with the first speech recognition engine<sup>31</sup> and to automatically select the first speech recognition engine if the number of available ports is above a threshold.<sup>32</sup>

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<sup>22</sup> Fig. 2, 212. Appellants' disclosure p. 3, line 4 of para. [0013].

<sup>23</sup> Fig. 2, 214. Appellants' disclosure p. 3, line 5 of para. [0013].

<sup>24</sup> Appellants' disclosure p. 5, lines 10-12 of para. [0019].

<sup>25</sup> Appellants' disclosure p. 7, lines 3-5 of para. [0025].

<sup>26</sup> Appellants' disclosure p. 7, lines 8-10 of para. [0025].

<sup>27</sup> Fig. 1, 110. Appellants' disclosure pp. 3-5, lines 5-9 of para. [0010].

<sup>28</sup> Fig. 1, 102. Appellants' disclosure p. 3, line 3 of para. [0010].

<sup>29</sup> Appellants' disclosure p. 5, lines 7-8 of para. [0019].

<sup>30</sup> Appellants' disclosure p. 5, lines 10-12 of para. [0019].

<sup>31</sup> Appellants' disclosure p. 7, lines 3-5 of para. [0025].

<sup>32</sup> Appellants' disclosure p. 7 lines 8-10 of para. [0025].

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Whether claims 1-4, 6, 9-13, 15-18, 21 and 22 are obvious (35 U.S.C. § 103) over Endo (U.S. Pat. No. 7,228,275) in view of Watanabe (U.S. Pat. No. 4,641,342).

Whether claim 5 is unpatentable over Endo in view of Watanabe and further in view of Kemble (U.S. Pat. No. 7,072,837).

## VII. ARGUMENT

### A. Obviousness rejection of claims 1-4, 6, 9-13, 15-18, 21 and 22 over Endo in view of Watanabe

Independent claim 1 requires, among other things,

wherein the first speech recognition engine permits a plurality of ports to be used on behalf of a plurality of users and the system further comprises a port monitor coupled to the first speech recognition engine and to the evaluation logic, wherein the port monitor determines a number of currently available ports and, based on the number of currently available ports exceeding a threshold, causes the first speech recognition engine to be selected and used.

The Examiner concedes that Endo fails to disclose these limitations, and instead turned to Watanabe. Appellants respectfully disagree with the Examiner's use of Watanabe in several respects.

Claim 1 requires the first speech recognition engine to be selected based on the number of ports that are determined to be available. The Examiner concedes that Endo lacks this limitation. Watanabe also lacks this limitation. While at any point in time, there may be a number of input user channels in Watanabe that are available, Watanabe does not at all teach determining what that the number is, and certainly does not teach using that number as a selection criteria for selecting a voice recognizer.

The Examiner alleges that Watanabe's teaching of recognizing  $n$  separate voices simultaneously "implies selecting and using the first speech recognition engine based on the number of currently available ports exceeding a threshold, since more than one voice recognizers are used by the system." Final Office Action p. 3. Appellants respectfully submit that the Examiner's conclusion does not logically follow from the recited teaching of Watanabe; that is, just because Watanabe simultaneously can service multiple users does not imply the selection of a recognizer based on the number of currently available ports. To the extent that Watanabe even teaches multiple speech recognizers (Fig. 3 of Watanabe shows a single recognizer with multiple inputs), Watanabe has no teaching of a recognizer being chosen **based on** the number of available ports.

Further, claim 1 requires the port monitor to determine if the number of available ports exceeds a threshold in order to determine whether to select the first speech recognition engine. Appellants do not find any teaching in Watanabe of such a threshold.

Additionally, the Examiner alleges that Watanabe discloses multiple voice recognizers. Watanabe, however, shows only a single voice recognizer (recognizer 15 in Fig. 3) with multiple inputs. Claim 1 requires multiple speech recognition engines.

For at least these reasons, the Examiner erred in rejecting claim 1 and its dependent claims over the cited art.

The same or similar reasons apply to the other independent claims and associated dependent claims as well.

**B. Obviousness rejection of claim 5 over Endo in view of Watanabe and Kemble**

Dependent claim 5 is rejected as allegedly obvious over Endo in view of Watanabe and further in view of Kemble. Appellants respectfully note that because claim 5 includes all of the limitations of independent claim 1 and because Kemble fails to overcome the deficiencies of Endo and Johnson discussed above, the Examiner erred in rejecting dependent claim 5 for at least the same reason as for claim 1.

**C. Conclusion**

For the reasons stated above, Appellants respectfully submit that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees

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required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

/Jonathan M. Harris/

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Jonathan M. Harris  
PTO Reg. No. 44,144  
CONLEY ROSE, P.C.  
(713) 238-8000 (Phone)  
(713) 238-8008 (Fax)  
ATTORNEY FOR APPELLANTS

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
Legal Dept., M/S 35  
P.O. Box 272400  
Fort Collins, CO 80527-2400

**VIII. CLAIMS APPENDIX**

1. (Previously presented) A system, comprising:  
a first speech recognition engine;  
a second speech recognition engine; and  
evaluation logic coupled to the first and second speech recognition engines, the evaluation logic evaluates the first and second speech recognition engines based on evaluation signals from a user and, based in part on the evaluation, selects one of said speech recognition engines to process additional speech signals from the user;  
wherein the first speech recognition engine permits a plurality of ports to be used on behalf of a plurality of users and the system further comprises a port monitor coupled to the first speech recognition engine and to the evaluation logic, wherein the port monitor determines a number of currently available ports and, based on the number of currently available ports exceeding a threshold, causes the first speech recognition engine to be selected and used.
2. (Previously presented) The system of claim 1 further comprising a switch coupled to the first and second speech recognition engines and the evaluation logic, wherein, based on the evaluation, the evaluation logic causes the switch to release a connection to the speech recognition engine that was not selected.
3. (Original) The system of claim 1 further comprising a communications mechanism and, based on the evaluation, the evaluation logic selects the communications mechanism that is not the first or second speech recognition engines.
4. (Previously presented) The system of claim 1 wherein if the number of currently available ports does not exceed the threshold, the evaluation logic compares outputs from the first and second speech recognition engines and selects the second speech recognition engine if the outputs are identical.

5. (Previously presented) The system of claim 1 wherein if the number of currently available ports does not exceed the threshold, the evaluation logic determines a response time for each of the first and second speech recognition engines and selects the second speech recognition engine if the response time of the second speech recognition engine is equal to or shorter than the response time of the first speech recognition engine.

6. (Previously presented) The system of claim 1 wherein if the number of currently available ports does not exceed the threshold, the evaluation logic receives a first confidence score from the first speech recognition engine and a second confidence score from the second speech recognition engine and selects the second speech recognition engine if the confidence score of the second speech recognition engine is equal to or higher than a threshold.

7.-8. (Cancelled).

9. (Previously presented) A system, comprising:  
first means for recognizing speech;  
second means for recognizing speech;  
means for evaluating a parameter associated with the first and second means for recognizing speech based on evaluation voice input from a user during a session and, based on the evaluation, for selecting one of said first and second means for recognizing speech; and  
means for monitoring a number of available ports associated with the first means for recognizing speech and for selecting the first means for recognizing speech if the number of available ports exceeds a threshold.

10. (Original) The system of claim 9 further comprising means for releasing the first or second means for recognizing speech that is not selected.

11. (Original) The system of claim 9 wherein the means for evaluating a parameter comprises means for assessing the relative accuracy of the first and second means for recognizing speech.

12. (Original) The system of claim 9 wherein the means for evaluating a parameter comprises means for assessing the relative performance of the first and second means for recognizing speech.

13. (Original) The system of claim 9 wherein the first and second means for recognizing speech comprise a means for determining a confidence score associated with the voice input.

14. (Cancelled).

15. (Previously presented) A method, comprising:  
evaluating an evaluation set of utterances from a user during a session;  
based on evaluating the evaluation set of utterances, selecting between a first speech recognition engine and a second speech recognition engine for the remainder of the session; and  
automatically selecting the first speech recognition engine if a number of available ports associated with the first speech recognition engine exceeds a predetermined value.

16. (Previously presented) The method of claim 15 wherein evaluating the evaluation set of utterances comprises determining a relative accuracy of the first and second speech recognition engines if the number of available ports associated with the first speech recognition engine falls below a predetermined value.

17. (Previously presented) The method of claim 15 wherein evaluating the evaluation set of utterances comprises determining a relative performance of the



first and second speech recognition engines if the number of available ports associated with the first speech recognition engine falls below a predetermined value.

18. (Previously presented) The method of claim 15 wherein evaluating the evaluation set of utterances comprises comparing a first confidence score generated by the first speech recognition engine with a second confidence score generated by the second speech recognition engine if the number of available ports associated with the first speech recognition engine falls below a predetermined value.

19.-20. (Cancelled).

21. (Previously presented) A storage medium containing code that can be loaded into a computer and executed by a processor in the computer, the code causing the computer to:

- evaluate an evaluation set of utterances from a user;
- based on the evaluation of the evaluation set of utterances, select between a first speech recognition engine and a second speech recognition engine; and
- determine a number of available ports associated with the first speech recognition engine and to automatically select the first speech recognition engine if the number of available ports is above a threshold.

22. (Previously presented) The storage medium of claim 21 wherein the code causes the processor to evaluate the evaluation set of utterances, if the number of available ports is below the threshold, by performing an action selected from the group consisting of comparing a relative accuracy of the first and second speech recognition engines, comparing the a relative performance of the first and second speech recognition engines, and comparing a confidence score

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generated by the first and second speech recognition engines, and a combination thereof.

23.-24. (Cancelled).

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**IX. EVIDENCE APPENDIX**

None.

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**X. RELATED PROCEEDINGS APPENDIX**

None.